REMARKS

Claims 10-29 are pending, with claims 10, 20, and 27 being in independent form. Presently, all claims stand rejected over the prior art cited by the Examiner.

I. Section 102 Novelty Rejections:

Claims 10 and 18-20 stand rejected as being anticipated under 35 U.S.C. § 102(b) by U.S. Patent No. 5,832,992 to Van Andel ("Van Andel").

With regard to independent claims 10 and 20, the Examiner has taken the position that Van Andel discloses all the elements of these claims, including the "means for balancing respective flows of air through the first and second channels to maximize heat exchange between the respective flows." The Examiner points to the rotor (47) of Fig. 12 in Van Andel, arguing that this rotor is equivalent to the claimed "means for balancing respective flows." Applicants respectfully disagree.

In Van Andel, the rotor (47) draws air from two feeds (21', 23') into separate chambers, divided by a wall (49) within the housing (45). Heat conducting wires running between the two chambers allow for heat transfer between the air in the two chambers while the rotor (47) rotates and pushes the heat-exchanged air through outlets (22', 24'). *See* Van Andel, at col. 8, lines 5-27. Because the rotor in Van Andel necessarily rotates at the same rate for both chambers within the housing, this rotor does not appear to operate in the same manner as the claimed "means for balancing respective flows." The balancing means of claims 10 and 20 require that the flows are balanced in a manner that "maximize[s] heat exchange." The rotor in Van Andel is not a means for balancing the air flows to maximize heat exchange because it has only a single manner of operation to control air flow, namely, one which provides an equal rotation for both inside and outside air. Depending on the variations in temperature and pressure of the air to be sent through the rotor, such equal rotation will in many instances be unable to balance the flows (i.e., between the two feeds (21', 23') and two outlets (22', 24')) in a manner which maximizes heat exchange.

By contrast, the present invention may control the two flows independently of each other (e.g., via ventilators 8 and 12) to ensure that the amount of heat exchanged between the two sources of air is optimized, and is therefore able to better take into account the varying temperatures and pressures. *See* page 7, lines 3-14 of the present application

(discussing how the temperature changes between the inside and outside air may be optimized to be equal by independently controlling the ventilators). Van Andel fails to teach or suggest any such means for balancing the air flow to maximize heat transfer.

Claims 18 and 19 are directed to the feature of the present invention that it is sized and configured such that it may fit inside of a typical dishwasher. The Examiner has taken the position that Van Andel teaches such a ventilation system, where it discloses that "[t]he heat exchanger preferably has the feature that the capillaries have an outer diameter of (0.5±0.2) and a wall thickness of 0.1-0.2 mm." *See* Van Andel, at col. 4, lines 65-67. However, these dimensions in Van Andel apparently refer to groupings of the conducting wires, and not the overall dimensions of the ventilator. *See* Van Andel, at col. 4, lines 55-64. Van Andel therefore does not teach or suggest a ventilation system with overall dimensions which can fit into a dishwasher.

In view of the above, claims 10 and 18-20 are patentable over Van Andel. Because claims 10 and 20 are independent claims, claims 11-19 and 21-26, which depend from claims 10 and 20, are likewise patentable for at least these same reasons.

II. <u>Section 103 Obviousness Rejections – Claims 11-13 and 21-23</u>:

Claims 11-13 and 21-23 stand rejected under 35 U.S.C. § 103(a) as being obvious over Van Andel in view of U.S. Patent Application Publication No. 2002/0153133 to Haglid ("Haglid").

Haglid discloses a heat exchanger having ventilators (26, 28) in fluid communication with the inside and outside air channels. *See* Haglid, at Fig. 1 and ¶ [0025]. Haglid also has two temperature sensors (84, 86) placed at the inlets of the first and second channels. *See* Haglid, at Fig. 1 and ¶ [0034]. The Examiner has taken the position that Haglid may be combined with the teachings of Van Andel to render the subject matter of claims 11-13 and 21-23 obvious. Applicants respectfully disagree.

A. Claims 11-12 and 21-22

Claims 11 and 21 recite "a first temperature sensor in fluid communication with the first channel <u>outlet</u>," and claims 12 and 22 recite "a second temperature sensor in fluid communication with the second channel <u>outlet</u>." By contrast, Haglid only teaches the sensors (84, 86) at the <u>inlets</u> of the respective channels. *See* Haglid, at ¶ [0034] and Fig. 1.

This is because the sensors' purposes are merely to measure the inside and outside air temperatures, so that heating and cooling modes may be initiated when measured temperatures fall below or exceed pre-set values. *See* Haglid, at ¶¶ [0041] and [0045]. Haglid does not include sensors at the outlets of the channels for measuring the temperature at the outlets of the channels, as can be done when using the present invention to help maximize heat transfer efficiency. *See* page 7, lines 3-14 of the present application. Because there is no teaching or suggestion in Haglid to include such sensors at the outlets of the channels, claims 11, 12, 21, and 22 are nonobvious over Van Andel and Haglid.

B. Claims 13 and 23

Claims 13 and 23 recite third and fourth sensors in addition to the first and second sensors recited in claims 11-12 and 21-22. These sensors are included so that "a first temperature difference" and "a second temperature difference" may be measured across the inlets and outlets of the respective channels. *See* claims 13 and 23; page 7, lines 3-14 of the present application. Heat transfer efficiency may be maximized by controlling the flow through the channels (e.g., via ventilators 8 and 12) such that the first and second temperature differences are "approximately equal." *See* claims 13 and 23; page 7, lines 3-14.

An example of the foregoing may be instructive. Suppose that a ventilation system is being used when the air outside of an enclosure is colder than the air inside. If the outside cold air increases by 2° F by the time it reaches the inside, and the inside air decreases by 3° F by the time it reaches the outside, then the system is inefficient. In such a situation it would be more efficient to slow the flow of air from the inside to the outside to allow the inside air to better transfer its heat to the incoming air from the outside. Optimal efficiency is realized when the temperature increase of the outside air (coming in) is approximately equal to the temperature decrease of the inside air (going out). Claims 13 and 23 are directed to a system wherein such balancing of temperature differences is achieved.

As noted above, Haglid only includes temperature sensors at the inlets, and the sensors are included for a specific purpose of triggering heating and cooling modes based on the interior and exterior temperatures. The above-described efficiency maximizing functionality may be achieved with the structure set forth in claims 13 and 23, but not with the structure of Haglid, because the Haglid system has no way to sense temperature <u>differences</u> in the ventilator channels. The Haglid system can only sense the inside and

outside temperatures. Because there is no teaching or suggestion in Haglid to include the third or fourth sensors set forth in claims 13 and 23, these claims are nonobvious over Van Andel and Haglid.

III. Section 103 Obviousness Rejections – Claims 27-29:

Independent claim 27 stands rejected over Van Andel in view of U.S. Patent Application Publication No. 2003/0159802 to Steneby et al. ("Steneby"). Claims 28 and 29, which depend from claim 27, stand rejected over Van Andel in view of Haglid or U.S. Patent No. 4,428,197 to Liljequist ("Liljequist"), respectively, in further view of Steneby. Steneby is relied upon for its teachings of mounting a heat exchanger in a wall of a building, as is recited in claims 27-29. *See* Steneby, at Abstract and Fig. 1. Claims 27-29 each include essentially the same limitation of claim 10, reciting "a means for balancing respective flows of air through the first and second channels to maximize heat exchange therebetween." As is discussed above, Van Andel does not teach or suggest a ventilator system including the claimed "means for balancing" which "maximize[s] heat exchange." Steneby likewise merely discloses a ventilation device installed in a wall, and having fans (18, 20) which can be controlled so as to make the total airflow substantially equal in both directions through the ventilator. Steneby, at Abstract and ¶ [0063]; Fig. 1. The Steneby device is not configured to maximize heat transfer in the manner of the present invention. Steneby's teachings therefore cannot be combined with the teachings of Van Andel to overcome Van Andel's deficiencies discussed above. Accordingly, claims 27, 28, and 29 are patentable for at least the same reasons that claim 10 is patentable.

CONCLUSION

For the foregoing reasons, Applicants respectfully request that the claim rejections be withdrawn, and all of pending claims 10-29 be allowed.

Respectfully submitted,

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